

Serial No. 09/622,173

HIBST et al.

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The Examiner has rejected claims 1-4 based on 35 U.S.C §103(a) as being unpatentable over **DeWitt et al.** (US 5,714,127). The Examiner argues that the material worked on does not limit an apparatus claim, and therefore the materials (heterogenous catalyst) within the channels do not further limit the apparatus claims. However, it is the applicant's position that the invention comprises a heterogenous catalyst as an element of the invention.<sup>2</sup>

According to §103, in order to establish a prima facie case of obviousness, there must be (1) some suggestion or motivation to modify the references, (2) reasonable expectation of success and (3) the prior art reference must teach or suggest all of the claim limitations.<sup>3</sup>

In a §103 analysis, the invention as a whole must be considered.<sup>4</sup> Furthermore, all words in a claim must be read and considered.<sup>5</sup> Therefore, that the applicant recites in the claim "heterogenous catalysts" and also "n channels comprise n different heterogeneous catalysts", these must be considered and are indicative of what the applicant regards as their invention.

Additionally, it is true that the material worked upon does not limit an apparatus claim as the Examiner argues, however here, the heterogeneous catalyst cannot be considered merely something worked upon by an apparatus, but should be considered as an element of the invention itself. In *In re Young*, the claims included a limitation to the concrete reinforced members made by the machine itself.<sup>6</sup> The court held that the inclusion of the article formed within the body, without more, did not make the claim patentable.<sup>7</sup> However, the present application cannot be characterized as merely the recital of an article worked upon, without more. The invention comprises an array of heterogeneous

<sup>2</sup> Claim 1 of the application.

<sup>3</sup> MPEP §2143

<sup>4</sup> *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)

<sup>5</sup> *In re Wilson*, 424 F.2d 1382; 165 USPQ 494 (CCPA 1970)

<sup>6</sup> *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935); Manual of Patent Examining Procedure §2115.

<sup>7</sup> See *Id.*

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catalysts, wherein reactants, which are acted upon, can react over a certain heterogeneous catalyst during its way through a reaction tube. Therefore, the heterogeneous catalysts are not merely something worked upon, but are an integral element of the invention itself. Therefore, with heterogeneous catalysts as an element of the invention, the cited reference does not teach or suggest all the claim limitations as required for prima facie obviousness, and so the Applicant requests the rejection be withdrawn.

Furthermore, applicant's new claim 2 is not obvious in view of DeWitt et al. DeWitt et al. teaches a system for multiple simultaneous synthesis of compounds using an apparatus comprising a reservoir rack having a plurality of wells, a plurality of reaction tubes, having filters on their lower ends, a holder block, having a plurality of apertures, and a manifold, which has ports to allow interdiction or maintenance. According to DeWitt et al., about 100 mg of functionalized resin are introduced in each single reaction tube, and afterward, solvent(s) and reactants are added. After a reaction is completed, the solvent is evaporated and the resin is washed by filling solvent into the reaction tubes, followed by agitation and removal of the solvent by draining through the filter.<sup>9</sup>

Therefore, the reaction tubes and vessels disclosed by DeWitt et al. act like ordinary batch reactors with the advantage that more than one reactor can be operated at a time. The resin, solvents and reactants are merely filled into a reaction tube for the reaction, wherein the reaction tube is closed in the lower end.

The present invention however, and according to new claim 21, comprise, inter alia, channels wherein each channel can be described as connections running between two orifices situated on the body surface which permits the passage of a fluid through the body. The array, therefore, according to the present invention,

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<sup>9</sup> DeWitt et al., column 13, line 19 to column 14, line 35.

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gives the opportunity to insert a reactant at one side of a tubular reactor, to let the reactant react over a certain heterogeneous catalyst during its way through the tube, and to receive the reaction products at the other end of the tube. This is not possible under DeWitt et al. because it is closed in at least one end.

Additionally, DeWitt et al. provides no motivation to make applicant's invention. DeWitt et al. discloses a system for preparation of several different organic compounds at a time by placing resins, solvents and reactants into a tube closed in at least one end. Applicant's invention however, is designed for testing of several different catalysts concerning activity selectivity and/or long term stability. Catalysts or precursors are provided outside the tubes and applied to the walls of said tubes or inorganic supports being in these tubes. Reactants are then passed through the tubes to react with the catalysts. Therefore, the system for the parallel preparation of several organic compounds according to DeWitt et al. does not point in the direction of an array of heterogeneous catalysts and/or their precursors for parallel testing of said catalysts.

The Examiner also made the restriction requirement final. The Examiner withdrew claims 5-20 from consideration because the Examiner believes that group I, claims 1-4, do not share the same technical feature over the prior art as group II. However, in light of the preceding arguments which show that claims 1-21 are non-obvious in view of the cited references, the applicant requests that the restriction requirement be reconsidered.

Additionally, it is the Applicant's position that claims 1-21 have unity because claim 1 claims an array of heterogeneous catalysts, and furthermore different processes for its preparation are claimed in claims 5 to 8, 10 and 11, and the process for the testing of catalysts in such an array according to claim 1 are claimed in 14 to 18. Therefore, all the claims share one or more special technical features, and so the restriction requirement is improper.

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Respectfully submitted,  
NOVAK DRUCE & QUIGG, LLP

Jason W. Bryan  
Reg. No. 51,505

1300 Eye Street, N.W.  
400 East Tower  
Washington, D.C. 20005  
(202) 659-0100

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